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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,379	02/23/2005	Takuji Nakagawa	36856.1308	5182

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EXAMINER

TENTONI, LEO B

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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07/15/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/525,379	Applicant(s) NAKAGAWA ET AL.	
	Examiner Leo B. Tentoni	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1791

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 May 2009 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 7-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 7, last two lines, the newly-added limitation of "heights of the inorganic members inserted into the concave portions are substantially the same as a height of the cured resin material remaining in the cavities" is not supported

Art Unit: 1791

by the originally-filed specification and thus, constitutes new matter (the portion of the specification cited by applicant, namely pages 14 and 15 (or paragraphs [0058] - [0063] of the published application) and Figures 4B and 4C, do not describe the height of any feature, including inorganic members or cured resin material).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1791

6. Claims 7-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiff et al (U.S. Patent 5,173,220 A).

Reiff et al (see the entire document, in particular, col. 1, line 61 to col. 2, line 6; col. 3, line 20 to col. 4, line 40) teaches a process of making a three-dimensional product including the steps of preparing an inorganic member and a photocurable resin material, successively and repeatedly performing stereolithography to form and cure stacked resin layers including a cavity (Reiff et al teaches (col. 4, lines 17-21) that "[a]fter the support structure or portions of the part are made, the machine is halted and the insert (26) is placed or located into or onto the partially-formed three-dimensional object", which means that the cavity may contain photocurable resin material), inserting an inorganic member into a cavity and curing the remaining photocurable resin. Reiff et al does not explicitly teach (1) using a plurality of inorganic members, or (2) heights of the inorganic members. The use of a plurality of members would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Reiff et al principally in order to manufacture a three-dimensional product having desired characteristics and/or properties. The heights of the inorganic members would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Reiff et al principally in order to manufacture a three-dimensional product having a desired structure.

Art Unit: 1791

7. Claims 7-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al (U.S. Patent 5,705,117 A).

O'Connor et al (see the entire document, in particular, col. 1, lines 8-17; col. 3, line 64 to col. 5, line 20; col. 6, lines 8-56) teaches a process of making a three-dimensional product including the steps of preparing a plurality of inorganic members and a photocurable resin material, successively and repeatedly performing stereolithography to form and cure stacked resin layers including cavities (O'Connor et al teaches (col. 4, lines 34-39) that "[o]nce the stereolithographic process develops the lower section 38, the platform 16 is raised above the top level of the photopolymer 14 within the vat 12, and a metal lead structure 44 is manually inserted on top of the section 38 in an appropriately configured cavity 45 formed in the section 38, as shown, by the stereolithography process" (by the very nature of the stereolithography process, uncured resin may remain in the cavity 45 when the platform 16 (which was submerged below the top level of the photopolymer 14) is raised above the top level of the photopolymer)), inserting a plurality of inorganic members into a cavity and curing the remaining photocurable resin.

O'Connor et al does not explicitly teach heights of the inorganic members. The heights of the inorganic members would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of O'Connor et al principally in order to manufacture a three-dimensional product having a desired structure.

Art Unit: 1791

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Reiff et al (U.S. Patent 5,173,220 A) or O'Connor et al (U.S. Patent 5,705,117 A) as applied to claims 7-11 and 13-16 above, and further in view of Takahashi (JP 2001-237616 A).

Takahashi (see the English-language translation) teaches a process of making a three-dimensional product including a high-dielectric ceramic material, and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of either Reiff et al or O'Connor et al principally in order to manufacture a three-dimensional product having desired dielectric properties.

Response to Arguments

9. Applicant's arguments filed on 28 May 2009 have been fully considered but they are not persuasive.

10. Applicant argues (pages 7 and 8) that neither Reiff et al nor O'Connor et al teach any step of "successively and repeatedly . . . **such that cavities filled with the photocurable resin material are formed** . . . are stacked" (emphasis by applicant) as recited in instant claim 7. Examiner responds that Reiff et al and O'Connor et al do teach this step. For example, Reiff et al teaches (col. 4, lines 17-21) that "[a]fter the support structure or portions of the part are made, the machine is halted and the insert (26) is placed or located into or onto the partially-formed three-dimensional object", which means that the cavity may contain photocurable resin material. Also, O'Connor et al teaches

Art Unit: 1791

(col. 4, lines 34-39) that "[o]nce the stereolithographic process develops the lower section 38, the platform 16 is raised above the top level of the photopolymer 14 within the vat 12, and a metal lead structure 44 is manually inserted on top of the section 38 in an appropriately configured cavity 45 formed in the section 38, as shown, by the stereolithography process" (by the very nature of the stereolithography process, uncured resin may remain in the cavity 45 when the platform 16 (which was submerged below the top level of the photopolymer 14) is raised above the top level of the photopolymer). Furthermore, this limitation in instant claim 7 does not positively recite a step of filling cavities with resin material, only that the cavities are filled with (or contain) resin material (the instant specification also does not appear to disclose a positive step of filling cavities with resin material).

11. Applicant argues (pages 8 and 9) that O'Connor et al does not teach or suggest that the upper surface of the lower section 38 in which the cavity 45 is formed could or should be submerged in the photopolymer 14 after the lower section has been developed. Examiner responds that O'Connor et al does not have to teach or disclose this feature because instant claim 7 does not positively recite a step of filling cavities with resin material, only that the cavities are filled with (or contain) resin material (the instant specification also does not appear to disclose a positive step of filling cavities with resin material). As set forth above, O'Connor et al teaches (col. 4,

Art Unit: 1791

lines 34-39) that "[o]nce the stereolithographic process develops the lower section 38, the platform 16 is raised above the top level of the photopolymer 14 within the vat 12, and a metal lead structure 44 is manually inserted on top of the section 38 in an appropriately configured cavity 45 formed in the section 38, as shown, by the stereolithography process" (by the very nature of the stereolithography process, uncured resin may remain in the cavity 45 when the platform 16 (which was submerged below the top level of the photopolymer 14) is raised above the top level of the photopolymer).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo B. Tentoni whose telephone number is (571) 272-1209. The examiner can normally be reached on Monday - Friday (6:30 A.M. - 3:00 P.M.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leo B. Tentoni/
Primary Examiner, Art Unit 1791